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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,268	12/16/2004	Dominicus Martinus Wilhelmus Leenaerts	NL 020551	3559

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EXAMINER	
CHEN, JUNPENG	
ART UNIT	**PAPER NUMBER**
2631	

DATE MAILED: 08/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/518,268	LEENAERTS ET AL.	
	Examiner	Art Unit	
	Junpeng Chen	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 December 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/16/2004*. and 08/18/2005
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement submitted on December 16, 2004 and August 18, 2005 have been considered by the Examiner and made of record in the application file.

Preliminary Amendment

3. The present Office Action is based upon the original patent application filed on December 16, 2004 as modified by the preliminary amendment filed on December 16, 2004. **Claims 1 - 9** are now pending in the present application.

Objection - Specification

4. The disclosure is objected to because of the following informalities:

a) On **page 6 line 23**, replace "that" with --than--.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Turning system with differential window comparator and Voltage Controlled Oscillator which tunable by switching capacitances

Appropriate correction is required.

Objection - Drawing

5. The drawings are objected to because some figures have blocks that lack descriptive labels. For example, block 3 in figure 1 should be additionally labeled as: "controller". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Appropriate correction is required.

Objection - Claims

6. Claims 6 and 8 are objected to because of the following informalities:

a.) On **line 7** of **claim 6**, replace "that" with --than--.

b.) There should be only one period " . " within a claim.

On **line 14** of **claim 8**, replace "1." with --(1)--

On **line 16** of **claim 8**, replace "2." with --(2)--

On **line 18** of **claim 8**, replace "3." with --(3)--

On **line 20** of **claim 8**, replace "4." with --(4)--

On **line 22** of **claim 8**, replace "5." with --(5)--

On **line 23** of **claim 8**, replace "6." with --(6)--

On **line 25** of **claim 8**, replace "7." with --(7)--

On **line 27** of **claim 8**, replace "8." with --(8)--

On **line 29** of **claim 8**, replace "9." with --(9)--

On **line 31** of **claim 8**, replace "10." with --(10)--

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8 and **9** rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Consider **claim 8**, it claims the system and the method of steps of using the system. This makes claim 8 become indefinite under 35 U.S.C. 112, second paragraph because claiming a system and the method of steps of using the system in one single claim would be held to be ambiguous. Please refer to Ex parte Lyell, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990).

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 8 and **9** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 8 claims a system and the method of steps of using the system. Based on the theory that the claim is directed to neither the "process" nor a "machine", but rather embraces or overlaps two different statutory classes of the invention set forth in 35 U.S.C. 101 which is drafted so as the set forth the statutory classes of invention in the alternative only. Id. at 1551.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by **Bart Balm, et al. (D.E. Patent No. 10056294 A1)**.

Consider **claim 1**, Bart Balm et al. clearly shows and discloses a tuning system for receiving *(receiver module, paragraph 0046])* a radio frequency input signal included in a frequency range the range having a plurality of non-overlapping bands, a maximum frequency and a minimum frequency, the tuning system comprising a voltage-controlled oscillator controlled by an analog signal and a first binary signal *(read as VCO is controlled by tuning signal UA and output of DR, Figure, paragraphs [0037] and [0042])* and being characterized in that the analog signal is inputted to a window comparator *(read as UA is inputted into window comparator (FK), Figure, paragraph [0042])*, said comparator having a low threshold which is indicative for the minimum frequency and a high threshold which is indicative for the maximum frequency *(read as the window comparator (FK) compares the tuning voltage (UA) from detector module (DE) to an upper limit (MAX) and to a lower limit (MIN). [The] limits are filed in the window comparator (FK), Figure, Paragraph [0042])*.

Consider **claim 2, as applied to claim 1 above**, Bart Balm et al. discloses the tuning system, wherein the window comparator generates a signal that is inputted to a controller *(read as the output of the window comparator (FK) is inputted into a inherently existing processing unit, which would comprises counter (CR), decoder (DR) and programming unit which generates programming signal (PS) to the frequency divider (DIV), Figure, paragraphs [0037-0038] and [0042]*, for generating the first binary signal

to digitally control an output frequency of the voltage-controlled oscillator *(read as the output of decoder (DR) is being used to control the VCO, Figure, paragraph [0042])*.

Consider **claim 3, as applied to claim 2 above**, Bart Balm et al. discloses the tuning system, wherein the controller further generates a second binary signal that is inputted to a frequency divider for determining a division factor of a periodical signal generated by the voltage-controlled oscillator *(read as the programming signal (PS) from the inherently existing processing unit is being used to adjust the divider ratio (N) of the divided oscillator signal (OS), Figure, paragraph [0038])*.

Consider **claim 4, as applied to claim 2 above**, Bart Balm et al. discloses the tuning system, wherein the controller further comprises a local memory for storing a binary representation of the frequency range and of each of the bands included in the frequency range *(read the counts of the counter (CR) for multiple stage are filed in a non-volatile memory and this non-volatile memory could be in the processing unit above, paragraph [0045])*.

Consider **claim 5, as applied to claim 3 above**, Bart Balm et al. discloses the tuning system, further comprising a phase-locked loop *(paragraph [0036])*, the phase-locked loop including a phase detector coupled to the frequency divider *(read as phase detector (PD) couples to frequency divider (DIV), Figure, paragraph [0039])*, the phase detector generating an error signal that is proportional to a phase difference between a phase of a reference periodical signal and a phase of a signal generated by the frequency divider *(read as reference signal (RS) by a reference oscillator (XO) and the output of the frequency divider (DIV) are inputted into the phase detector (PD) to*

generate the phase difference of them two, Figure, paragraph [0039]), the error signal being inputted to a compound bloc comprising a charge pump coupled to a loop filter, the compound bloc generating the analog signal *(read as the output of the phase detector (PD) goes into charge pump (CD), which couples to loop filter LF, to generate tuning voltage (UA), Figure, paragraphs [0039]-[0040]).*

Consider **claim 7, as applied to claim 1 above**, Bart Balm et al. discloses the tuning system, wherein the voltage-controlled oscillator comprises a plurality of capacitors coupled respectively to a plurality of switches, a state of said switches being controlled by the first digital signal *(read as oscillator is with several partial capacitances switched in parallel, each of which can feature one switch respectively in series for a partial capacitance and the switches are connected to the decoding and actuating module in order to influence the oscillator frequency and thus tunning frequency range of the oscillator, paragraph [0019]).*

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 6, 8 and **9** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bart Balm, et al. (D.E. Patent No. 10056294 A1)** in view of the **Morgan et al. (U.S. Patent No. 6,320,406 B1).**

Consider **claim 6, as applied to claim 1 above**, Bart Balm et al. discloses the tuning system, wherein the window comparator generating a first signal having a binary value whenever the analog signal is bigger than the high threshold, generating a second signal having a second binary value whenever the analog signal is smaller than the low threshold *(read as if the tuning voltage (UA) exceeds the upper limit (MAX), then an up signal is prepared which causes the counter (CR) to increase its current count by 1. If the current tuning voltage (UA) falls below the lower limit (MIN), then a down signal is used to cause the counter (CR) to decrease its current count by 1, paragraph [0043]).*

However, Bart Balm et al. fails to specifically discloses that the window comparator comprising a first differential comparator and second differential comparator to generate first signal and second signal respectively,

In related art, Morgan et al. discloses a window comparator 51, which comprises a first differential comparator 510 and second differential comparator 511, Fig. 5, lines 45-65 of column 4.

Therefore, it would have been obvious for a person with ordinary skill in the art at the time the invention was made to incorporate the teachings by Morgan et al. into the teachings of Bart Balm et al. for the purpose of using a window comparator having zero-crossing state.

Consider **claim 8, as applied to claim 3 above**, Bart Balm et al. discloses the tuning system, wherein the window comparator generating a first signal having a binary value whenever the analog signal is bigger than the high threshold, generating a second signal having a second binary value whenever the analog signal is smaller than the low threshold *(read as if the tuning voltage (UA) exceeds the upper limit (MAX), then an up signal is prepared which causes the counter (CR) to increase its current count by 1. If the current tuning voltage (UA) falls below the lower limit (MIN), then a down signal is used to cause the counter (CR) to decrease its current count by 1, paragraph [0043])*, wherein the voltage-controlled oscillator comprises a plurality of capacitors coupled respectively to a plurality of switches, a state of said switches being controlled by the first digital signal and the first digital signal comprises a plurality of binary signals each of the binary signals controlling a respective switch *(read as oscillator is with several*

partial capacitances switched in parallel, each of which can feature one switch respectively in series for a partial capacitance and the switches are connected to the decoding and actuating module in order to influence the oscillator frequency and thus tunning frequency range of the oscillator, paragraph [0019] and [0043]), a tuning method further comprising the steps of:

(1) Setting all the switches in an OFF state so that the first digital signal=00 . . . 0; (2) Modifying the second binary signal sequentially until the first signal is HIGH; (3) Setting all the switches in an ON state so that the first digital signal=11 . . . 1; (4) Modifying the second binary signal sequentially until the second signal is HIGH; (5) Setting the first binary signal=00 . . . 1; (6) Adjusting the second binary signal till the first signal becomes HIGH; (7) Adjusting the second binary signal till the second signal becomes HIGH; (8) Storing the second binary signal codes in memory of the controller; (9) Modifying the first binary signal to the next value; and (10) Repeating steps 6 to 9 until all possible values of the first digital signal are used *(read as the tuning system is capable of decreasing or increasing the current count to balance to VCO to obtain desired frequency, this same system is capable of performing the above steps to obtain all possible counts that balances the VCO, paragraphs [0019] and [0043]-[0045]).*

However, Bart Balm et al. fails to specifically discloses that the window comparator comprising a first differential comparator and second differential comparator to generate first signal and second signal respectively,

In related art, Morgan et al. discloses a window comparator 51, which comprises a first differential comparator 510 and second differential comparator 511, Fig. 5, lines 45-65 of column 4.

Therefore, it would have been obvious for a person with ordinary skill in the art at the time the invention was made to incorporate the teachings by Morgan et al. into the teachings of Bart Balm et al. for the purpose of using a window comparator having zero-crossing state.

Consider **claim 9, as applied to claim 8 above**, Bart Balm et al., as modified by Morgan et al., discloses the use of the tuning method for quality control of the tuning systems having a VCO controlled by an analog signal and a binary signal in a manufacturing process and for quick locking on a frequency of an external signal in an exploitation process of an external signal in an exploitation process. *(Since applicants recite "use of the tuning method for ..." in current claim, the examiner treats current claim as an Intended Use Limitation claim. Bart Balm et al., as modified by Morgan et al., discloses all the limitations of the claims that claim 9 directly or indirectly depending on, the invention by Bart Balm et al., as modified by Morgan et al., would be capable for use of use of the tuning method for quality control of the tuning systems having a VCO controlled by an analog signal and a binary signal in a manufacturing process and for quick locking on a frequency of an external signal in an exploitation process of an external signal in an exploitation process. According to In Re Schreiber, 44 USPQ2d 1429 (Fed. Cir. 1997), "(T)he recitation of a new intended use for an old product does*

not make a claim to that old product patentable." Thus, claim 9 is rejected for claiming intended usage of an old invention).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fernandez-Texon; Francisco	US 6605965 B1	Differential window comparator
Mucke; Lars Henrik et al.	US 6211745 B1	Method and apparatus for digitally controlling the capacitance of an integrated circuit device using mos-field effect transistors
Konishi; Shinichi	US 6104682 A	Disk apparatus having a data reproducing system using a digital PLL
Nagano; Katsumi	US 4409497 A	Window comparator circuit

Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to**:

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P.O. Box 1450
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Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Junpeng Chen whose telephone number is (571) 270-

1112. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on 571-272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Junpeng Chen
J.C./jc

August 23, 2006

RAFAEL PEREZ-GUTIERREZ
SUPERVISORY PATENT EXAMINER
8/28/06